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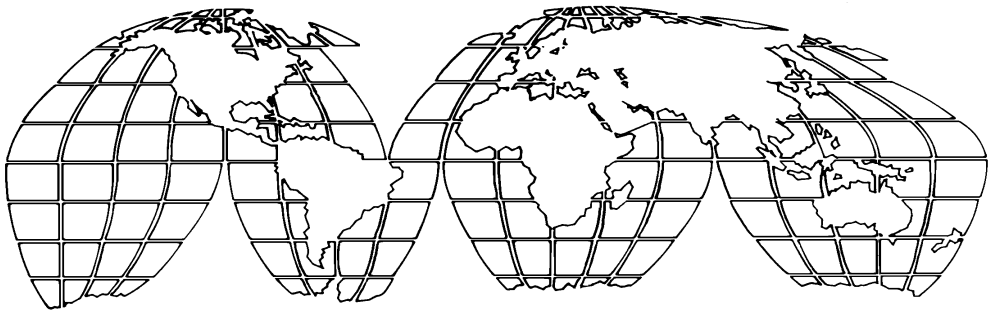
Privatizing Fertilizer Distribution: Bangladesh Case Study



Center for Development Information and Evaluation
U.S. Agency for International Development (USAID), Washington, D.C. 20523

Summary

In the early 1980s USAID began to support development of private agribusiness. Most programs concentrated on institutions that support agribusiness, helping entrepreneurs with agroprocessing and marketing, and aiding market development for agricultural products. But programs in two countries—Bangladesh and Cameroon—adopted a narrower strategy: privatizing delivery of agricultural inputs. The aim of the Bangladesh program was to privatize fertilizer marketing and distribution to improve market efficiency and promote entrepreneurship.

The program succeeded beyond expectations, even though direct program assistance from USAID and the Bangladesh Government reached proportionately few firms and did not address all the problems agribusinesses face. Fertilizer is critical to rice production (which accounts for 75 percent of agricultural output in Bangladesh), and as soon as the subsector was privatized, hundreds of firms emerged to import and distribute fertilizer. More than 100,000 entrepreneurs entered the marketplace to meet the immediate retail demand for fertilizer, dramatic evidence that private firms can flourish, even without direct assistance, when there is demand for what they are selling.

The simple, consistent, strongly felt vision behind the program was critical to its success. The USAID Mission was intent on increasing the availability of fertilizer at a lower cost but had no preconceived ideas about how this was to be achieved. USAID was working with the International Fertilizer Distribution Center (IFDC), however, whose team leader aimed to make fertilizer distribution as efficient and market-responsive as possible. The team leader also favored privatization.

Several forces were working together. The Government of Bangladesh was wrestling with severe budget problems and was eager to reduce its subsidy programs. It also wanted to make fertilizer more widely available, especially to rice farmers. There was a growing consensus among technocrats to move away from socialism toward free markets, and many donors were encouraging economic liberalization. Tangible early results also strengthened public commitment to the program.

Privatization of fertilizer marketing and distribution significantly improved both employment and agricultural production. A solid 45,000 jobs were created. The improved fertilizer distribution system was an economic boon because it was part of a full, economically viable technical package that also included high-yielding rice varieties and improved irrigation.

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(The seeds were available mainly because of USAID-funded research in the 1960s, and the irrigation equipment became available and affordable in the mid- to late 1980s because of policy reforms supported by the World Bank and the Asian Development Bank.)

Cultivation of high-yielding varieties of paddy required 32.5 more person-days per hectare than did cultivation of the traditional variety. It also improved efficiency and increased farmer profits 35 percent. Production increased most dramatically in the dry season. Smallholders especially benefited, as 61 percent of Bangladeshi farmers who use fertilizer own less than 1 hectare. As a result of the program, income increased $600 million a year for paddy production and $750 million a year for all crops.

Those who received training, information, marketing advice, and help in day-to-day problem solving were virtually unanimous in praise and appreciation for USAID's technical assistance. But the main reason the fertilizer distribution and marketing system improved was that the policy environment improved. Even with little or no direct assistance from program staff, private businesses would have survived in the reformed fertilizer market. The fertilizer distribution program offers strong evidence that the private sector responds efficiently to undistorted open markets.

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Background

With per capita income of about $180 a year, Bangladesh is one of the world's poorest countries. It is also one of the most densely populated, with an average 2,087 people per square mile. Economic growth since the mid-1970s has been steady but not spectacular. Gross national product growth averaged about 4 percent a year (nearly 2 percent per capita).

Growth in agricultural production barely exceeded the 2 percent population growth rate in the last decade. Still, the agriculture sector accounts for 70 percent of all employment, 38 percent of gross domestic product, and 9 percent of exports. Rice makes up three fourths of farm output.

Economic development was hampered by heavy-handed public controls, among them an overvalued currency and government control of key input and crop markets. Under the old marketing system, in use since the 1960s, agricultural inputs—including fertilizer, seeds, and irrigation equipment and services—were procured and distributed by the state-owned Bangladesh Agricultural Development Corporation (BADC). A national network of appointed dealers handled retail sales. From 1962 to 1978, fertilizer sales increased nearly 10-fold—from 73,000 tons to 720,000 tons—but the market was heavily controlled and subsidized by the government. In recent years, in an effort to reduce its subsidy programs, the government has decontrolled markets for farm inputs and currency and privatized public enterprises. This program was part of that move toward decontrol.

USAID's Assistance Approach

Under the old marketing system, BADC had no incentive to cut costs, and retailers, who operated on fixed commissions, were limited in their ability to take advantage of changing markets. Moreover, neither BADC nor retailers effectively promoted the use of fertilizer. To address these problems, USAID and the Bangladesh Government undertook two fertilizer distribution improvement projects over a 16-year period: FDI–1, which began in 1978, and FDI–2, which began in 1987.

The goal of FDI–1 was to increase agricultural production (to 4 percent annual growth, and 6 percent for holdings of less than 1 hectare) by increasing the use of fertilizer (by 15 percent a year generally, and 22 percent for holdings of less than 1 hectare). The thrust of FDI–1 was to replace the old marketing system with a new one

by liberalizing marketing policy, making BADC more efficient and market-oriented, and strengthening the role and effectiveness of private dealers. This was to be done mainly by providing technical assistance to BADC under a contract with the IFDC.

FDI–1 is considered a major success. It halted increases in BADC's distribution costs, privatized fertilizer distribution at the retail level, and deregulated fertilizer retail prices. Nonetheless, BADC operations and dealer policies needed improving: Products were consistently in short supply, and BADC had trouble shifting to a market orientation. Consequently, USAID and the Bangladesh Government agreed to launch FDI–2. This program concentrated less on strengthening BADC and more on strengthening the role of the private sector.

There has been steady progress toward the government's full disengagement from fertilizer distribution. This has been a step-by-step process, essentially spearheaded by the Ministry of Agriculture and eased by a sustained policy dialogue between USAID and the Bangladesh Government. The FDI–2 technical team also assisted by providing analysis and information to key government officials, especially in the Ministry of Agriculture.

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FDI–1 removed BADC from retail *sales* without threatening the organization's role in *distribution*. But allowing private dealers to purchase in large quantities from a few BADC-owned "transport discount points" was to be the first step toward privatizing distribution. When private dealers quickly took advantage of the opportunity, BADC recognized that its distribution network would be reduced from 75 wholesale depots to about 10 transport discount centers nationwide. Staff reacted by obstructing the use of discount centers, forcing private wholesalers to continue using the more widely dispersed wholesale depots.

This attempted obstruction ultimately expedited privatization: In 1989, with private distributors unable to purchase from the transport discount centers, the Minister of Agriculture decided to allow private distributors to bypass them and purchase directly from factories and ports. BADC's only remaining role, then, was to import fertilizer. By 1992–93, however, fertilizer imports too had been fully privatized.

Program Achievements

As a result of FDI–1 and FDI–2, fertilizer distribution in Bangladesh improved considerably. The program fulfilled its main objectives:

1. *Liberalizing and privatizing the fertilizer market.* In 1978, when FDI–1 started, the entire fertilizer distribution system was government controlled from port and factory to the consumer. BADC distributed all fertilizer through a network of 20,000 private retailers it appointed and permitted to sell at set prices and locations. By 1992 the government was completely disengaged from the fertilizer market, prices were decontrolled, and fertilizer subsidies had ended.

2. *Increasing the number and effectiveness of private fertilizer importers, distributors, and dealers*. In 1978 BADC sold 720,000 tons of fertilizer to 20,000 BADC-appointed private dealers who were allowed to sell only within prescribed areas and at set prices. By 1985, 5,000 wholesalers, which sold to about 12 retailers each, had replaced the 20,000 private dealers. Today 10,000 wholesalers serve more than 100,000 retailers.

3. *Making the fertilizer market more efficient*. The privatized system is more responsive to markets and customer needs, and prices are intensely competitive. Distributors make timely, reliable deliveries, provide good dealer service, and anticipate farmers' needs and demands. Competition is strong all along the marketing chain and in every part of the country. Margins are small, and distributors and dealers constantly seek ways to minimize costs. As a result of this more efficient marketing system, costs to farmers are considerably lower.

Economic Impact

FDI's effect on the economy stemmed almost entirely from its influence on fertilizer use, which has increased agricultural production, rural incomes, and food self-sufficiency. In the decade before FDI started, growth in fertilizer sales (an average 9.4 percent a year) was achieved mainly through government subsidies, which covered roughly 65 percent of the cost. By 1978, when FDI–1 started, the subsidy was unsustainable, and donors and the government generally agreed the subsidy had to be reduced if not eliminated. Moreover, fertilizer costs (including marketing costs) were increasing rapidly, and the fertilizers farmers needed were often in short supply.

While the subsidy was being eliminated and as marketing costs fell, the price of fertilizer as a share of the price of rice actually declined slightly. As costs fell and distribution and marketing improved, fertilizer sales nearly tripled—from 750,000 tons in 1978 to 2.3 million tons in 1993.

{The most dramatic growth has occurred in dry-season production....In the 5 years ending in 1985, production grew 10 percent a year, and in the 5 years after that, 9 percent a year.|

Rice production is now about 5 million tons greater than it would have been if fertilizer use had not increased during the 1980s. Rice prices would have risen, and Bangladesh would still be a major rice importer. As a result of increased use of fertilizer, in the decade 1973–82 rice production grew 42 percent (10 percent by area and 26 percent by yield). In the following decade (corresponding roughly with the FDI program), production increased 30 percent (3 percent by area and 26 percent by yield). The price of rice fell steadily from 1970 on, and in 1992–93 Bangladesh became self-sufficient in rice.

The main rice crop is *aman*, which coincides with the late monsoon period. This season accounts for more than half of total rice production. Production increases for aman rice have come almost entirely from the increased use of high-yield varieties and fertilizer. Without fertilizer, high-yield varieties produce little more than local varieties. The availability of fertilizer allowed farmers to increase cropland planted in high-yield varieties from 4 percent of total cultivated area in 1980 to 40 percent in 1993. If fertilizer use had leveled off at 1 million tons (a distinct possibility under BADC), aman production would have been about 8 million tons instead of the current 9.7 million tons.

But the most dramatic growth has occurred in *boro* (dry season) production—averaging 6.4 percent a year during the life of the program. In the 5 years ending in 1985, production grew 10 percent a year, and in the 5 years after that, 9 percent a year. Boro rice depends almost entirely on irrigation, the high cost of which dictates that farmers get maximum yields. For the boro season, the key factor in fertilizer use is availability, not price. Had fertilizer availability remained at the 1-million-ton level, boro production in 1992–93 would probably have been 3.5 million tons instead of the 6.5 million tons it was.

Farm budget studies conducted under FDI–2 indicate that every year 173,000 more person-years are used in producing aman paddy, and 530,000 more person-years are used in producing boro paddy. Additional returns to land and draft animals during the boro season have a value of about $190 million. And farms using the high-yield variety technical package as a result of the FDI program are generating increased profits of about $288 million a year. Increased income from rice production is about $600 million a year (from all crops, more than $750 million a year). That translates into about 1.7 million new farm-level full-time equivalents. (An equivalent is 240 8-hour days.)

Ultimately, outlays for FDI–1 and FDI–2 were $222 million and $66 million, respectively. The program succeeded in privatizing fertilizer marketing and producing substantial

efficiency gains for the country (see box). Was the program worthwhile in terms of costs and benefits? USAID analysts calculate an internal rate of return of 12 percent and a net present value of $44 million (based on a 10 percent discount rate), even with a full accounting of costs. But it is probably inappropriate to include all project costs, because 60 percent of the budget went to fertilizer imports that generated funds to support general government spending. Excluding the cost of fertilizer imports, the internal rate of return is 21 percent and the estimated net present value is $160 million. By any standards, these are respectable returns on investment.

Social Impact

With privatization of fertilizer distribution, 45,000 jobs were created in agricultural input supplies. (Although data were not available, the proportion of women employed was undoubtedly low because of cultural and economic barriers to their employment.)

But the main effects were on farms. High-yield variety paddy required 32.5 more person-days per hectare than the traditional variety (grown mostly during the rainy season). About 2 million additional hectares in the rainy season and 1.7 million more in the dry season were under production under the high-yielding tech-

A More Efficient Market

As a result of the two fertilizer distribution improvement projects, the fertilizer market improved in the following ways, among others

- Direct purchases of urea from the factories, and of phosphate and potash from the port produce major cost savings all along the marketing chain.
- The Bangladesh Chemical Industries Corporation is now paid cash for its fertilizer, improving its cash flow.
- Private distributers pay much less than BADC did for barge transport, the main form of transport from ports and dealer warehouses.
- Inventory management is easier under private distributors and dealers, who purchase in smaller lots and choose warehouse locations that reduce transport costs and make the fertilizer more accessible to retailers and farmers. (Most distributors own two warehouses and rent two more, and half have purchased their own transport facilities.)
- Direct private imports in 1991–92 cut the cost and freight price of fertilizer 8 percent.
- Since 1989, competition has kept the margin between the issue price (at factory or distribution point) and the farm price below 20 percent for urea and phosphate and 25 percent for potash, which is sold in smaller quantities. When the issue price increases unexpectedly, private distributors and dealers generally absorb part of the increase, then gradually raise the margins back to competitive but profitable levels.
- Farmers now get the kind of fertilizer they want, in the quantities they want, at the time they need it. (BADC was unable to project demand or anticipate local shortages, so the fertilizers available at a given site were often not those the farmers needed.)
- Because of training provided under FDI–2, fertilizer dealers are now a key source of technical advice to farmers. Under BADC, most fertilizer retailers had little or no technical knowledge of how fertilizers should be applied.

nical package (including seeds, irrigation, and fertilizer).

Smallholders have especially benefited. Use of fertilizer increases as the size of the farm drops, and in Bangladesh, 61 percent of farmers who used fertilizer owned less than 1 hectare.

Not only has the price of rice dropped over time—about 30 percent in real terms from 1972–1992—but rice prices have also become more stable because of increased production during the dry season. The drop in prices has increased the real incomes of the poorest segments of the population, who now spend proportionately less on rice. According to a recent IFDC survey, when the price of rice drops 20 percent, 10 million people move from inadequate to adequate daily caloric intake. The same survey found that the extra real income is spent on nutrition. Consumption of meat has increased 75 percent, adult body weight has increased measurably, and the number of malnourished children has declined.

Findings

USAID efforts succeeded in privatizing the supply, marketing, and distribution of inputs. The success of the intervention was attributable partly to the simple, consistent, and strongly felt vision underlying the program. That vision provided the framework for a step-by-step process that was implemented over 16 years. Although the program was ideologically driven to some extent (in USAID as well as in IFDC), the underlying objective was always *to identify changes in fertilizer policies that would increase the availability and reduce the delivered cost of fertilizer.* Without this emphasis, and without strong pressure to liberalize the economy, BADC and its supporters might have prevented the termination of subsidies and the privatization of fertilizer distribution and marketing.

USAID ultimately aimed to dismantle rather than strengthen BADC, but it did so by stages, first downsizing the BADC operation and then relieving BADC of its responsibility for fertilizer distribution. The political commitment of the United States and the Bangladesh Government, and a focused intervention strategy contributed to the success of the intervention. So did Bangladesh's firm assurance—designed to reduce labor resistance—that BADC employees would not lose their jobs.

It might seem incongruous that FDI–1 aimed to strengthen fertilizer distribution through BADC and that FDI–2 aimed to eliminate BADC from fertilizer distribution, but, as a practical matter, *increasing BADC's effectiveness was a necessary step in privatization.* One reason for the program's success was the priority put on demonstrating the effects of policy changes at every stage of reform. Successful pioneering firms set examples others could follow, and first-comer firms developed expertise they later shared with latecomers; indeed, some new businesses were established by former employees of pioneering firms. *BADC could not have been removed from fertilizer distribution if the program had not first shown conclusively that the private sector would be able to distribute fertilizer more effectively and inexpensively.*

A key program component was technical assistance to the government in fertilizer marketing policy. As issues surfaced, the IFDC provided data and analysis and brought in experts from the United States to provide the government with the most complete and accurate information possible. Changes were made only when government decision-makers understood and supported them. One key to the program's success was its reliance on data, analysis, and demonstrated results, rather than on USAID-imposed conditions. The fertilizer privatization strategy was not only focused, but also empirically grounded in a realistic assessment of obstacles to the growth of agribusiness. As a senior government official put it, "The reform process was not slow, it was gradual, and that is what ensured its acceptability."

An economically viable technical package made fertilizer use profitable, especially combined with irrigation and high-yielding rice varieties. Farm households that used fertilizer to grow high-yielding rice in the aman season

earned 40 percent more per hectare than households that grew traditional varieties without fertilizer. Incentives were even greater in the boro season. When the distribution of irrigation equipment was liberalized, the irrigated area in the dry season increased dramatically. But the cost of irrigation was so high that without *ensured* access to fertilizer, the investment would not have been profitable. *Availability of the* full *technical package was essential for the success of interventions affecting any single agricultural input.*

Direct program assistance reached proportionately few agricultural input firms and did not cover all the problems agribusinesses face. But the firms grew and flourished even without direct assistance. In general, the program showed that *improving the policy and regulatory environment, privatizing parastatals, disengaging government from direct participation in agribusiness activity, and developing infrastructure help expand agribusiness more than direct assistance to firms does.*

{The Bangladesh Agricultural Development Corporation could not have been removed from fertilizer distribution if the program had not first shown conclusively that the private sector would be able to distribute fertilizer more effectively and inexpensively.|

Lessons Learned

It is important to build support within the government and affected institutions before bringing about policy changes that significantly affect private and state sectors and change basic social and economic agendas. The main intent of reform should be to improve the policy, regulatory, and institutional environment. Privatization efforts in Bangladesh were eased by the general atmosphere of economic liberalization. But at every step of FDI–1 and FDI–2, the government was consulted and was shown data and analyses about the previous steps and results. Building support for far-reaching changes takes time, but the time must be taken.

Tangible positive results early in a program are key to generating and nurturing public commitment.

Changing government agribusiness policies requires highly qualified technical experts capable of dealing with both government and the private sector. One element of program success was the availability of highly competent fertilizer marketing experts from IFDC. They built credibility with the government and the private sector. This was especially important in Bangladesh, with its long tradition of promoting agricultural production through parastatals.

The private sector responds efficiently to undistorted open markets. At every step toward privatization, private businesses expeditiously replaced BADC, cutting distribution costs and making more timely deliveries to farmers. Efficiency improved with little direct assistance to businesses. What assistance existed was directed to small and medium-size firms, which dominate agribusiness in Bangladesh.

Privatization efforts are made easier when carried out in the context of general economic liberalization. The FDI program was part of a major government policy shift, not an isolated program diametrically opposed to the government's main development policies. Absent high-level government and widespread donor support for economic liberalization, it might have been impossible to overcome BADC and political resistance to privatization of fertilizer markets.

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This Evaluation Highlights, *by Krishna Kumar of USAID's Center for Development Information and Evaluation, summarizes the findings of the study* Assessment of USAID's Fertilizer Market Privatization Program: Bangladesh, *CDIE Working Paper No. 198, by Roger Poulin of Development Alternatives, Inc. The study is part of a seven-country program evaluation directed by Krishna Kumar. The working paper can be ordered from the DISC, 1611 N. Kent Street, Suite 200, Arlington, VA 22209–2111; telephone (703) 351–4006; fax (703) 351–4039; Internet docorder@disc.mhs.compuserve.com. Editorial and production services provided by Conwal, Inc.*